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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/876,506	06/06/2001	Matthew D. Giere	10006598-1	9309

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HEWLETT-PACKARD COMPANY
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EXAMINER
NGUYEN, LAM S

ART UNIT	PAPER NUMBER
2853	

DATE MAILED: 05/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No	Applicant(s)	
	09/876,506	GIERE ET AL.	
	Examiner	Art Unit	
	LAM S NGUYEN	2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 March 2003.
- 2a) ☒ This action is **FINAL**.
- 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 and 40-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 45 is/are allowed.
- 6) ☒ Claim(s) 1-36 and 40-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-36 and 40-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Steinfield et al. (US 5984464) in view of Maeda (US 6053599).

Steinfield et al. discloses a fluid ejecting printhead, comprising:

a substrate having a surface (FIG. 11, element 71)

a columnar group of drop generators (FIG. 14) formed on the surface that are arranged into subgroup (FIG. 14, three drop generators)

printhead electronics that provide firing pulses to the drop generators such that no drop generators in the same subgroup are activated sequentially or simultaneously (FIG. 16: the firing sequence, TABLE 1: if the first firing is the nozzle 1, the next firing is the nozzle 7)

Referring to claims 2, 20: the printhead electronics activates the drop generators in the columnar group of drop generators one at a time (column 5, line 24-27)

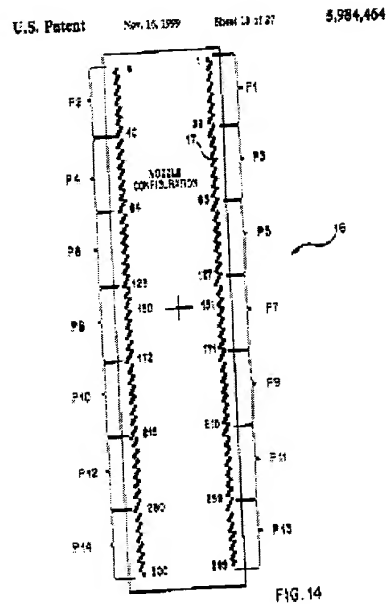
Referring to claims 3, 21: the columnar group of drop generators is a primitive, and the substrate comprises a plurality of primitive arranged in a column (FIG. 14)

Referring to claims 7, 10, 26: the substrate includes a thin film layer that overlays the fluid feed slot, the thin film layer having openings that couple each of the subgroups to the fluid

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feed slot (FIG. 12), and the thin film layer forming heater resistors in each of the drop generators (FIG. 12, element 12)



Referring to claim 13: an apparatus for imparting relative motion between the printhead substrate and a print media (FIG. 25)

Referring to claim 14: a fluid source commonly coupled to all of the drop generators in a column group (FIG. 13, element 52)

Referring to claim 24: a replacement fluid to the fluid source (column 5, line 20-24)

Referring to claims 34 and 43: the barrier/orifice structure includes a polymer layer (column 5, line 40-41)

Referring to claims 35 and 44: the nozzles of each nozzle column have a pitch of 600 nozzles per inch (See Abstract)

Referring to claim 36:

a thin film layer disposed on a surface of the substrate (FIG. 13, element 80), the thin film layer defining a plurality of firing resistors (FIG. 13, element 96), the thin film layer having a plurality of ink feed openings formed through to provide respective ink paths through the substrate and thin film layer (FIG. 13, element 88).

a barrier/orifice structure (FIG. 13, element 30), disposed on the thin film layer, the structure defining an array of nozzles arranged in a plurality of nozzles columns (FIG. 14) and an array of firing chambers (FIG. 13: the space around element 96) in correspondence with correspondence with the array of nozzles (FIG. 13, element 92),

the barrier/orifice structure further comprising a continuous rib portion (FIG. 13, elements 30 and 18) extending between adjacent first and second ones of the plurality of nozzle columns to fluidically separate the first and the second ones of the nozzle columns (FIG. 13: two corresponding of nozzles columns respect to nozzles 92 and 94 is separately fluidically as illustrated by elements 88).

Referring to claims 1, 4-6, 8, 9, 11, 15, 16-19, 23, 25, 27, 28, 31, 40:

Steinfeld et al. does not disclose the nozzles comprising the array are arranged in subgroups of nozzles/ drop generators, each subgroup comprising at least two nozzles/drop generators, each subgroup fed with liquid ink through a corresponding ink flow path isolated from other nozzles of array/subgroups of drop generators by the barrier layer/orifice layer.

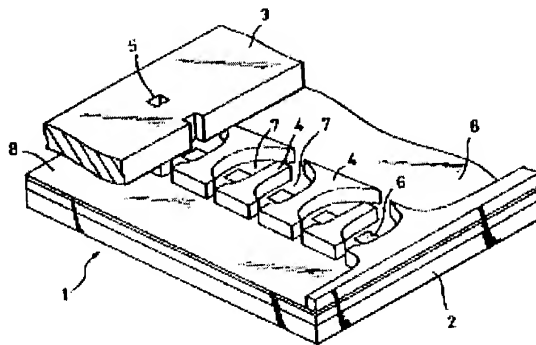
Maeda discloses a liquid jet printhead having nozzles/drop generators arranged into subgroups (FIG. 29: two elements 7), each comprising at least two nozzles/drop generators (FIG. 29: two elements 7), each subgroup fed with liquid ink through a corresponding ink flow path

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isolated from other nozzles of array/subgroups of drop generators by the barrier layer/orifice layer (FIG. 29: each group of two elements 6 is fluidically isolated from other group of two elements 6 by element 4).

FIG. 29



Therefore, it would have been obvious for one having ordinary skill in the art at the time the invention was made to modify the arrangement of the drop generators formed on the substrate disclosed by Steinfield et al. such that drop generators arranged into subgroups, each comprising at least two drop generators and each subgroup being fluidically isolated from other subgroups as disclosed by Maeda. The motivation of doing so is to be capable of constantly maintaining good stable ink ejection conditions to obtain high quality images as taught by Maeda (column 3, line 34-38).

Allowable Subject Matter

2. Claim 45 is allowed.

The most pertinent arts Steinfield et al. and Wu et al. do not disclose that the plurality of ink feed openings are arranged in a first group on a first side of the rib portion for feeding nozzles of the first one of the plurality of columns, and a second group on a second side of the

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rib portion for feeding nozzles of the second one of the plurality of columns. Therefore, the claimed invention is not disclosed by the prior arts.

Response to Arguments

Applicant's arguments with respect to claim 1, 12, 22, 30, 36 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAM S NGUYEN whose telephone number is (703)305-3342. The examiner can normally be reached on 7:00AM - 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, RUSS ADAMS can be reached on (703)308-2847. The fax phone numbers for the

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organization where this application or proceeding is assigned are (703)305-3431 for regular communications and (703)305-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

LN

May 21, 2003


JUDY NGUYEN
PRIMARY EXAMINER